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10/724,564	11/26/2003	Wayne Edward Beimesch	414130	9670

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EXAMINER	
ROGERS, DAVID A	
ART UNIT	**PAPER NUMBER**
2856	

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/724,564	BEIMESCH, WAYNE EDWARD	
	Examiner	Art Unit	
	David A. Rogers	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 29 November 2004 have been fully considered but they are not persuasive.

Claims 23-31

Claims 23-25 are each directed to a kit for measuring VOCs from a fluid bed dryer, a spray bed dryer, or a storage tank, respectively. The "kit" comprises (a) an enclosed bag having a sealable opening and a headspace and (b) instructions for analyzing samples from the headspace. Hemphill (United States Patent 4,930,906) teaches an enclosed bag having a sealable opening and a headspace. Hemphill also teaches instructions for using the bag in a particular manner.

The applicant argues that Hemphill "does not teach or suggest a kit for measuring volatile organic compounds produced in a process system having emissions by way of Applicant's invention." The applicant further states that process systems are closed systems with dynamic air flow properties and include spry dryers, mixers, fluid bed dryers and coolers, and storage tanks.

First, the applicant's specification never recites a process system having "dynamic air flow properties". The applicant does state that process systems have effluents, which is typically defined as something that flows out or forth, especially:

a. A stream flowing out of a body of water.

b. An outflow from a sewer or sewage system.

c. A discharge of liquid waste, as from a factory or nuclear plant.

There is nothing in this definition that requires the process system to have dynamic air flow. Furthermore, storage tanks can be open to the atmosphere, and thus are not inherently "closed systems" as used by the applicant. The applicant is directed to the decision by the Board of Patent Appeals and Interferences (BPAI) for co-pending application 09/806,274. The BPAI clearly articulated in their decision the following with regard to the applicant's position that the claim language encompasses only closed systems:

> We cannot subscribe to appellant's position. We determine that the broadest reasonable interpretation of the plain language of the claim phrase taken in light of the claim language as a whole and the written description in the specification. Requires that the claimed method measures VOCs of *any* "material," and thus can include liquid, paste or solid "material," as set forth in the specification (page 3, lines 3-4), which is "produced in" any "process system" open or closed, "having emissions," that can be VOC emissions, wherein the material produced in the process system can contain VOCs. Thus, "a material" can include any intermediate of final "product" that is produced by "a process system having emissions," including materials that are VOCs *per se*. However, while the process system can be open or closed, it must be one in which "the mean exit temperature of said emissions of said system" can be determined in order to establish the temperature at which the "the enclosed bag containing said material" is stored so the "equilibrium between said material and said headspace is reached" as specified in claim 1.
>
> Indeed, we find *no* requirement in the claim language as a whole or in the written description in the specification that "*a process system*" must be a "*closed system*" as the appellant contends. We determine that one of ordinary skill in this art would recognize that the "[e]xemplary process systems" at page 4, lines 26-28, of the written description in the specification, can be "open systems," that is, systems open to the atmosphere, wherein VOCs emitted by such systems can be monitored with respect to amount and temperature as they exit the system to the atmosphere, and wherein the amount of

> VOC "emissions" from the "process system" has no relationship to the amount of VOCs in the intermediate or final "product" even at the "mean exit temperature of said emissions of said system." We further find no explanation in the written description in the specification why one of ordinary skill in this art would consider "storage tanks," which can be vented to the atmosphere even when the "product" therein contains VOCs, to be an example of "a process system."

It is clear from the decision by the BPAI that process systems are not limited to closed systems. As noted above by the BPAI these systems can be open or closed. This is further supported by the applicant's specification where the process systems have effluents, which are a materials that flow from the systems. The process system need not have "dynamic air flow properties." For example, storage tanks will typically have a port so that the material can be released from the tank. There is no requirement that such a tank have dynamic air flow properties.

Irrespective of the above, the claims (23-31) are not patentable. In the previous office action the applicant was directed to *In re Ngai*, 70 USPQ 2d 1862. The Court of Appeals for the Federal Circuit (CAFC) expressly stated that the *addition of new instructions to a known kit merely teaches a new use for an existing product*. The kit of the applicant is an enclosed, sealable bag. The instructions are merely teaching how to use the bag. The instructions do not enable the bag from being utilized any particular manner. That is, it is inherent that the bag of Hemphill alone can be used to hold material from a process system, and the headspace of the bag can be sampled. See also Robbins (United States Patent 5,140,845) where material is stored in a bag so that there is a headspace. The headspace is sampled and analyzed. Any

enclosed, sealable bag has the capability to be used as part of the kit as claimed by the applicant. The instructions, as claimed by the applicant, do not enable any bag from holding any material and only describe a process to store the bag and sample the headspace of the bag. In fact the instructions could be located near in a laboratory and not with the bag itself. It appears that the content of the instructions are more directed to a copyright issue and not to patentable subject matter.

Claims 11-22

The applicant argues that "there is no suggestion or teaching of a method for measuring VOCs of [sic] material produced in spray bed dryers, fluid bed dryers, or storage tank systems."

EPA Method AP-42 clearly states that spray drying may release VOCs. Furthermore, this method also states that vent lines, vacuum exhausts, raw materials and product storage, and waste streams are all potential odor (VOC) sources. Section 7.1 of the method provides a detailed example on estimating the emissions rate of VOCs from the material in a storage tank. The estimating process clearly shows that the emission rate is function of temperature. In this regard it is not clear how the applicant determines that the prior art does not suggest measuring VOCs.

Furthermore, the applicant's specification makes it very clear that it is known to monitor VOCs:

> **A long-standing problem in the chemically-related manufacturing industry has been the way in which the rate of VOC emissions is controlled and monitored**. The

> concerns associated with VOC **control and monitoring are well rooted in governmental policies throughout the world**, all of which are aimed at reducing the emission of such VOCs into the atmosphere. Additionally, the manufacturing industries themselves have been notably concerned with safety and environmental concerns associated with VOC emissions. As a result, since the onset of the industrial revolution, **the chemically-related manufacturing industry has striven for zero to minimal VOC emissions**. To that end, relatively expensive and time-consuming **VOC measurement techniques have been developed and have been constantly employed to monitor VOC emissions of virtually every unit operation in every manufacturing facility throughout the world**. In fact, numerous companies have sprouted into existence which specialize in testing techniques for VOCs and aid in ensuring compliance with specific strict company as well as governmental regulations. Such specialization and expertise render these services extremely expensive, and therefore, significantly add to the overall expense of whatever product is being manufactured. Accordingly, there remains a need in the art for an inexpensive, less time-consuming, method by which VOCs can be conveniently measured for a given material being produced in a process system.

The applicant makes it quite clear and unambiguous that EVERY chemical-related manufacturer in the world measures VOC releases and strives to reduce the amount of VOCs released. Again, it is not clear why the applicant states that the prior art does not teach or suggest monitoring of VOCs from process systems (including spray dryers, fluid bed dryers, and storage tanks) since these systems are known process components of every chemical-related manufacturer.

Legros *et al.* was used to show that it is known that fluid bed dryers produce materials with VOC emissions. Turriff *et al.* was cited to show that it

is known to obtain a sample of material with a mass between 1 and 100 grams and that it is known to use this sample in a method to test for VOCs (see the abstract of Turriff *et al.*). Method 5035, as promulgated by the EPA, expressly teaches a method for measuring for VOCs in a sample of material having a mass of about 5 grams using a FID apparatus. The references suggest to one of ordinary skill that, for using an FID to detect VOCs (see Robbins) one only needs a sample mass of about 5 grams.

The applicant argues, that impermissible hindsight has been used in the rejection of the applicant's claims. In response to applicant's argument, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Method AP-42 already teaches that the amount of VOCs emitted by a material is dependent on the temperature of the material. Penton teaches that it is known, in headspace sampling, to hold the material at a temperature between 5 °C and 100 °C in order to reach equilibrium.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 23-31 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent 4,930,906 to Hemphill.

With regard to claims 23-31, the "kit" claimed by the applicant consists solely of a sealable bag and instructions to use the bag. Hemphill teaches a sealable bag with instructions for using the bag. Hemphill does not teach using a sealable bag to store material emitting VOCs. One of ordinary skill in the art would be highly motivated to ensure that appropriate instructions related to the intended use of the bag would be included as a matter of design choice. The applicant is further directed to *In re Ngai*, 70 USPQ2d 1862[1].

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Compilation of Air Pollutant Emission Factors, AP-42" to the Environmental Protection Agency (EPA) in view of United States Patent

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[1] Claim directed to kit for performing method of normalizing and amplifying ribonucleic acids was properly rejected as anticipated by prior art, even though content of instructions in claimed kit differs from instructions in prior art, since addition of new set of instructions into known kit merely teaches new use for existing product, in that instructions do not interrelate with kit so as to produce new product, and since addition of printed matter to existing product will not distinguish invention from prior art in terms

5,140,845 to Robbins, United States Patent 5,809,664 to Legros *et al.*, and "Chemical Principles" to Masterton *et al.*

The EPA continually promulgates information and guidance to the public regarding hazardous materials. Of particular relevance is EPA Method AP-42. Section 6.8 of this method, written July 1993, addresses soaps and detergents. Herein the Method AP-42 reiterates what the applicant already admits is well-known, and that is that certain processes such a spray drying release VOCs into the atmosphere. Furthermore, section 6.8.3.1 of Method AP-42 states (emphasis added)

> The main atmospheric pollution problem in soap manufacturing is odor. The storage and handling of liquid ingredients (including sulfonic acids and salts) and sulfates are some of the sources of this odor. *Vent lines, vacuum exhausts, raw material and product storage, and waste streams are all potential odor sources*. Control of these odors may be achieved by scrubbing exhaust fumes and, if necessary, incinerating the remaining volatile organic compounds (VOC).

In section 6.8.3.2 it is stated (emphasis added):

> In addition to particulate emissions, volatile organics may be emitted when the slurry contains organic materials with low vapor pressures. The VOCs originate primarily from the surfactants included in the slurry. *The amount vaporized depends on many variables such as tower temperature and the volatility of organics used in the slurry*. These vaporized organic materials condense in the tower exhaust airstream into droplets or particles. Paraffin alcohols and amides in the exhaust stream can result in a highly visible plume that persists after the condensed water vapor plume has dissipated.
>
> *Opacity and the organic emissions are influenced by granule temperature and moisture at the end of drying, temperature profiles in the dryer, and formulation of the slurry*. A method for controlling visible emissions would be to remove

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of patentability if printed matter is not functionally related to product.

> offending organic compounds (i. e., by substitution) from the slurry. Otherwise, tower production rate may be reduced thereby reducing air inlet temperatures and exhaust temperatures. Lowering production rate will also reduce organic emissions.

The Method AP-42 is quite clear that the temperature of the process may, in fact, be a major causal factor in the release of VOCs into the atmosphere. Furthermore, drying towers, vent lines, product storage (i.e. storage tanks), vacuum exhausts, and waste streams are all regions within a process system whose temperature can be measured.

Section 7.1 of Method AP-42 details VOC emissions from systems such as storage tanks. This section also provides a listing of some known VOCs and their boiling points and vapor pressures (see table 7.1-3). This section also provides a detailed example on estimating the emission rate of VOCs from the material in a storage tank (see pages 7.1-73 through 7.1-83). This estimating process clearly shows that the *emission rate* is a function of the temperature of the material in the tank, the vapor space volume, and the equilibrium partial pressures of the volatile organic liquids in the material.

Robbins teaches a method and apparatus for measuring volatile organic compounds (VOCs) in soils. In particular, Robbins teaches a resealable polyethylene bag (reference item 120) into which is placed a sample (an aqueous sample or a soil sample mixed with distilled water) (column 3, lines 35-37). After sealing, the bag is agitated to promote the release of any VOCs present in the sample. Robbins further reiterates what is already well-known in the art by citing from "Water Quality" to Tchobanoglous. This citation,

generally on column 2, lines 55-68 and column 3, lines 1-7, teaches that time, mass size, and temperature all directly affect headspace equilibrium. At any rate, Robbins teaches that the headspace in the sealed bag is to reach equilibrium prior to testing for VOCs. In testing for VOCs, Robbins teaches that a flame ionization detector (FID) is used as the means to detect the VOCs in the headspace.

Robbins teaches that it is beneficial to store the bag at an optimum temperature in order that the headspace reach a state of equilibrium (column 5, lines 1-6). Robbins also teaches that time is a relevant factor to reach the desired equilibrium in the headspace (column 4, lines 57-58). Finally, Robbins teaches that the initial mass of the sample is directly related to the measured equilibrium headspace concentration (equation 5, equation 7). Robbins does not expressly teach a method for testing where the material is placed in a sealable bag and *is stored at the mean exit temperature of said emissions of said system*.

Masterton *et al.* teaches the general scientific theory of liquid-vapor equilibrium in a closed system. A sealed flask is used in the example, but the scientific principles apply equally to a sealed bag. Masterton *et al.* teaches that a liquid placed in the closed system will, over time, reach a state of equilibrium with regard to the headspace. Equilibrium is the state wherein, at a given temperature, the number of molecules from the liquid entering into the vapor state (headspace) equals the number of molecules reentering the liquid state. As temperature increases the vapor pressure of liquids increase. Therefore, at

higher temperatures a larger fraction of molecules will acquire enough energy to escape from the liquid to the vapor. This means that at higher temperatures more vapor molecules will be present in the headspace than at lower temperatures. Equilibrium, however, will be reached over time and will be independent of the temperature. It is just that more molecules will be present in the vapor when equilibrium is reached at higher temperatures thus increasing the probability of detection of the VOC molecules when the headspace is sampled.

Replicating the conditions that exist in a product manufacturing process, e.g. replicating the temperature at which products are manufactured, stored, or handled, etc. would allow one of ordinary skill to determine if the specific conditions was indeed causing VOCs to be released into the atmosphere. Since vapor pressure of liquids increases with temperature, VOC release rates will be higher at points in the manufacturing process that are at elevated temperatures. These increased release rates must be monitored to ensure that the manufacturing process is in compliance with state and federal laws that require monitoring of VOCs (see also applicant's background of the invention). By understanding this basic relationship between temperature and vapor pressure one could then use techniques to minimize the amount of VOCs released, such as by scrubbing, incineration, substitution, and lower temperatures. See again section 6.8.3.1 of Method AP-42.

It is important to note that maintaining the closed system, i.e. the sealed bag, at the "mean exit temperature" of the process may be impractical. Bed

dryers and spray dryers can operate at very high temperatures that would cause the bag to melt. See Legros *et al.* where it is taught that it is known that fluid bed dryers can operate at 400 °C and are a source of VOCs. Since Masterton *et al.* teaches that headspace equilibrium will eventually be reached independently of the temperature it will not be necessary to maintain the bag at such high temperatures. A higher temperature may be preferred since it will increase the amount of VOCS released into the headspace thus replicating existing processes and increasing the probability of VOC detection by the analyzing apparatus. That is, maintaining the temperature of the bag at an elevated temperature will also allow a facility to determine if their specific process has a higher-than-allowed release rate of VOCs. It is also important to note that, with open systems such as spray dryers and FBDs, VOCs will inherently release into the atmosphere even if the exit temperature was low. This is because all liquids have a vapor pressure that is temperature dependent as noted above. A lower the temperature generally results in a lower emitting rate of a VOC. This can be seen in table 7.1-3 of the Method AP-42.

EPA Method AP-42 in view of Robbins, Legros *et al.*, and Masterton *et al.* and teaches that it is known that, in a closed system, the initial mass and the temperature affect the equilibrium. The time to reach equilibrium is, therefore, dependent on amount of material, the temperature of the material, and the vapor pressure of the materials of interest. The time for reaching equilibrium, e.g. time between 5 and 24 hours, therefore, is dependent on knowing the

conditions (temperature, sample size) being tested and would be determined on a case-by-case basis.

It is also known that gas chromatographs (GC) and FIDs are used to determine analyte quantities in a sample based on the peak value, i.e. the measured response of the GC/FID. Specifically, a higher VOC concentration in the headspace, resulting from reaching equilibrium at elevated temperatures, will be reflected in the response from the GC/FID.

Finally, the applicant's choice of sampling materials from a fluid bed dryer (FBD) or spray bed dryer is anticipated by the fact that the applicant admits that "VOC measurement techniques have been developed and have been constantly employed to monitor VOC emissions of virtually every unit operation in every manufacturing facility throughout the world." According to the applicant's own admission, therefore, it is known in the art to measure VOCs in every manufacturing facility in the world, and this would include facilities with storage tanks, spray bed dryers, and fluid bed dryers. See also the pertinent prior art listed below.

In summary:

a) EPA Method AP-42 teaches that manufacturing processes, including spray dryers and storage areas, may produce VOCs, and these VOCs may be released into the atmosphere;

b) EPA Method AP-42 teaches that the amount of VOCs released into the atmosphere is dependent on the temperature;

c) Robbins teaches that it is known to detect the presence of VOCs by obtaining a sample of material, placing the sample in a bag, sealing the bag, and then maintaining the bag at conditions to allow the headspace to reach equilibrium;

d) Robbins teaches that it is known to use FID to measure the concentration of VOCs in the headspace of the sealed bag.

e) Masterton *et al.* teaches that, in a sealed system, equilibrium will be reached in the headspace of the closed system independently of the temperature

and

f) Masterton *et al.* teaches that the concentration of materials in the headspace is dependent on the temperature of the closed system.

It would, therefore, have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of EPA Method AP-42 with the teachings of Robbins, Legros *et al.*, and Masterton *et al.* in order to provide a sample of material from a system (spray dryer, storage tank, etc.), seal the material in a bag in order to have a headspace, and then to hold the material at a mean exit temperature of the emissions of the system in order to allow the headspace to come to equilibrium prior to testing for the presence of VOCs using techniques such as a flame ionization detector.

6. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over EPA Method AP-42 in view of Robbins. Legros *et al.*, and Masterton *et al.* as applied to claims 11-13 above, and further in view of United States Patent 5,522,271 to Turriff *et al.* and/or "Method 5035 - Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples" to the EPA.

EPA Method AP-42 in view of Robbins, Legros *et al.*, and Masterton *et al.* teaches that it is known to place material in a sealed bag and to let the headspace in the bag reach equilibrium prior to sampling for the presence of

VOCs. Furthermore, Robbins teaches that, in headspace sampling, a consistent volume or weight of ground water or soil is placed in a container (column 1, lines 48-50) and the initial mass of the sample is critical to headspace equilibrium (columns 5-6). EPA Method AP-42 in view of Robbins, Legros *et al.*, and Masterton *et al.* does not expressly teach a sample size between 1 gram and 100 grams.

Turriff *et al.* teaches an apparatus for obtaining samples for VOC testing. The sampling device has a volume capacity of 25-30 grams (column 2, lines 64-67) and provides for the consistent volume for headspace sampling as required by Robbins. Also, EPA Method 5035 was originally promulgated by the EPA in 1996. This method specifically teaches methods for testing of VOCs in solid materials such as soils, sediments, and solid wastes. This method can be used in conjunction with EPA Method 8015 which is testing using gas chromatographs and FIDs. Specifically, this EPA method teaches that VOCs are determined by collecting an approximately 5 gram sample and placing it in a vial with a septum-sealed screw-cap. The vial is sealed and shipped to a laboratory or appropriate analysis site. The entire vial is then placed, unopened, into the instrument carousel. The vial containing the sample is heated to 40 °C and the volatiles purged into an appropriate trap using an inert gas combined with agitation of the sample.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of EPA Method AP-42 in view of Robbins, Legros *et al.*, and Masterton *et al.* with the teachings of Turriff *et al.*

and/or Method 5035 in order to provide a apparatus as part of the method to obtain a sample size between 1 and 100 grams in order that the consistent sample size is placed in the bag prior to sealing.

7. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over EPA Method AP-42 in view of Robbins, Legros *et al.*, and Masterton *et al.* as applied to claims 11-13 above, and further in view of "Determination of Volatile Organic Solvents in Water by Headspace Sampling with the 8200 CX Autosampler" to Penton.

EPA Method AP-42 in view of Robbins, Legros *et al.*, and Masterton *et al.* teaches that it is known to provide a sample in a sealed bag (a closed system) and to heat the bag so that the headspace reaches equilibrium. EPA Method AP-42 in view of Robbins, Legros *et al.*, and Masterton *et al.* further teaches that temperature affects the release of VOCs from a material. EPA Method AP-42 in view of Robbins, Legros *et al.*, and Masterton *et al.* does not teach a method where the material is held at a temperature between 5 °C and 100 °C.

Penton teaches that it is known in headspace sampling to maintain the closed system, i.e. the 22 mL vial with 10 mL sample, at 80 °C until headspace equilibrium is reached. Again, as known from Masterton *et al.*, equilibrium would have been obtained at any temperature. However more molecules will be released to vapor form at the higher temperature. This will increase the probability of detecting the VOCs in the sample.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of EPA Method AP-42 in view of

Robbins, Legros *et al.*, and Masterton *et al.* with the teachings of Penton in order to provide a closed system (sealed bag) at a temperature between 5 °C and 100 °C in order to reach equilibrium in the headspace.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. United States Patent 4,091,544 to Hutchins teaches that fluid bed dryers are known to be used in the manufacture of detergents.

b. United States Patent 5,002,691 to Bolkan *et al.* teaches that it is known to use spray beds in the formation of detergents.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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dar
05 March 2005

HEZRON WILLIAMS
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